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Civil Engineering

**INSTALLATION GEOSPATIAL
INFORMATION AND SERVICES
(IGI&S)**

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This instruction implements Department of Defense Instruction (DoDI) 8130.01, Installation Geospatial Information and Services (IGI&S) by identifying the requirements to implement and maintain an Air Force Installation Geospatial Information and Services program and Air Force Policy Directive (AFPD) 32-10 Installations and Facilities. Installation Geospatial Information and Services, a subset of Geospatial-Intelligence, is governed separately, in accordance with AFI 14-132, Geospatial-Intelligence (GEOINT). This publication applies to active Air Force, Air National Guard (ANG), and Air Force Reserve Command (AFRC) installations, and AF facilities that have Real Property Asset Management responsibilities as defined in AFPD 32-90, Real Property Asset Management. Program stakeholders subject to this instruction include all individuals and organizations utilizing Installation Geospatial Information and Services data and capabilities. This publication may be supplemented at any level, route all supplements to the Office of Primary Responsibility (OPR) listed above for coordination prior to certification and approval. Refer recommended changes and questions about this publication to the OPR listed above using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate chain of command. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (T) ("T-0, T-1, T-2, T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, Table 1.1. for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance

with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) in the Air Force Records Information Management System (AFRIMS).” The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the AF. This publication is technical in nature and is intended to be used by individuals familiar with the use of geospatial information. **Chapter 3** provides a summary the fundamental principals of the AF IGI&S (GeoBase) Program and its capabilities to inform those unfamiliar with the use and capabilities of geospatial information.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. The rewrite clarifies the scope of the Installation Geospatial Information and Services Program and the roles, responsibilities, and activities of program stakeholders. The rewrite establishes new standards, processes, and terminology for increased effectiveness of program operations. New sections on governance and resources provide additional guidance for stakeholders with program management responsibilities.

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Chapter 1

INTRODUCTION

1.1. Program Overview. GeoBase is the name of the AF Installation Geospatial Information and Services Program. GeoBase is the AF Program of Record for enterprise Installation Geospatial Information and Services integration, led by the Directorate of Civil Engineers, recognized by the Office of the Secretary of Defense (OSD) and the Assistant Secretary of Defense for Energy, Installations and Environment Installation Geospatial Information and Service Governance Group (IGG). The GeoBase Program enhances AF operational and business missions with spatial (geospatial), tabular, and temporal information integration. GeoBase enables the management of AF Installations' natural and built infrastructure to support military readiness with regard to facility construction, contingency planning, sustainment, and modernization including the operation and sustainment of military test and training ranges. GeoBase provides location-based context, and awareness, assisting leaders to make the best possible mission decisions.

1.2. Authority. This publication is in accordance with the authority in Department of Defense Instruction 8130.01, Installation Geospatial Information and Services, this instruction establishes guidance, assigns responsibilities, and provides governance procedures for Installation Geospatial Information and Services in support of AFD 32-70, Environmental Quality; AFD 90-8, *Environment, Safety, & Occupational Health Management and Risk Management*; AFD 32-90, Real Property Asset Management; and AFD 33-3, Information Management. This publication is consistent with Joint Publication (JP) 3-34, Joint Engineer Operations. This instruction interfaces with guidance found in 32 series AFIs, DoDI 4165.14, Real Property Inventory and Forecasting, and DoDI 8320.02, Sharing Data, Information, and Information Technology (IT) Services in the Department of Defense. This publication provides procedures and guidance for identifying functional area requirements, as well as the provision and use of Installation Geospatial Information and Services.

CHAPTER 2

ROLES AND RESPONSIBILITIES

2.1. Enterprise. The responsibility for successful GeoBase implementation is a cross-functional, enterprise concern residing at all levels of the AF. Overarching categories of responsibility are defined below. Tiering referenced below only applies to Wing or equivalent and below, Direct Reporting Unit (DRU), and Field Operating Agency (FOA).

2.1.1. Requirement Owner will.

2.1.1.1. Use existing resources and self-service capabilities before articulating new requirements for resources or capabilities **(T-1)**.

2.1.1.2. Coordinate with the appropriate governance structure and business process at their level of command when articulating requirements **(T-1)**.

2.1.1.3. Secure funding to fulfill requirements beyond the GeoBase Programs core sustainment **(T-1)**.

2.1.1.4. Coordinate with the requirement management process through the complete lifecycle, including requirement identification, definition, coordination, decision, and execution **(T-1)**.

2.1.2. Data Schema Owner will.

2.1.2.1. Coordinate with Air Force Civil Engineer Center (AFCEC) to ensure compliance with criteria required for integration between functional business information systems and Installation Geospatial Information and Services information systems **(T-1)**.

2.1.2.2. Ensure the creation and maintenance of supplementary data content specifications and any associated forms **(T-1)**.

2.1.2.3. Identify and define local and enterprise needs for geo-enabled information **(T-1)**.

2.1.2.4. Manage inclusion of new assigned geospatial data layers and ensure the validity and relevance of assigned geospatial data layer(s) in the Geospatial Data Model (GDM) **(T-1)**. A data layer is a specific geospatial feature, such as wetlands, land use, or building, which is a point, line or polygon object with a spatial location in the real-world landscape that can be used for visualization and analysis.

2.1.2.5. Determine data requirements verification, data creation and collection methodologies, and data quality assurance and quality control procedures **(T-1)**.

2.1.2.6. Provide representation to appropriate geospatial data related governance processes concerning data policies, standards, procedures, and coordination with other data schema owners **(T-1)**.

2.1.2.7. Coordinate with AFCEC to determine geospatial data access and releasability policies and procedures in accordance with any appropriate AFIs or similar guidance relevant to their functional area as well as in accordance with AFI 16-1404, Air Force Information Security Program **(T-1)**.

2.1.2.8. Identify enterprise, regional, or local Data Stewards and coordinate with AFCEC and other relevant functional area representatives **(T-1)**.

2.1.3. Data Steward will.

2.1.3.1. Execute data quality assurance and quality control procedures on newly acquired or updated geospatial data as determined by the data schema owner (T-2).

2.1.3.2. Identify and help resolve data issues with the designated data acquisition organization and/or contracting officer (T-3).

2.1.3.3. Maintain data accuracy and compliance as determined by the data schema owner (T-2).

2.1.3.4. Coordinate with the appropriate AFCEC office to identify and help resolve data issues, data currency, data quality, analysis requirements, and process improvements as necessary (T-2).

2.1.3.5. Ensure contracts that collect geospatial information are written in accordance with the associated geospatial data layer's data content specifications (T-2).

2.1.3.6. Coordinate with the appropriate data schema Owner to create a data content specifications when one does not exist for a required geospatial data layer undergoing a data collection effort (T-2).

2.1.3.7. Ensures data acquisition contract deliverables comply with relevant data standards and completeness requirements established by the appropriate data schema owner and contracting officer (T-2).

2.2. Deputy Chief of Staff for Intelligence, Surveillance, and Reconnaissance Air Force/A2 (AF/A2). The AF/A2 is the AF Geospatial-Intelligence functional manager and is responsible for developing Geospatial-Intelligence policy as referenced in AFI 14-132. The AF/A2 serves as the AF central point of contact for Geospatial-Intelligence and coordinates all Geospatial-Intelligence issues with the National Geospatial Intelligence-Agency, the other Services, Joint Staff, and the Intelligence Community. The Air Force Geospatial-Intelligence Office (AF/A2OC) is the primary AF interface with the National Geospatial Intelligence-Agency, Joint Staff, the Combatant Commands, Under Secretary of Defense for Intelligence and the other Services on Geospatial-Intelligence matters.

2.3. Secretary of the Air Force Chief Information Officer (SAF/CIO A6). The SAF/CIO A6 is responsible for integrating AF information and systems, including assets managed by the GeoBase Program, in accordance with Headquarters Air Force Mission Directive (HAFMD) 1-26, Chief, Information Dominance and Chief Information Officer. The SAF/CIO A6 is responsible for appropriate integration and utilization of geospatial information, services, and capabilities within the context of overarching AF priorities for information technology.

2.4. Deputy Chief of Staff/Logistics, Engineering and Force Protection, (AF/A4). The AF/A4 is the overall lead for the AF Logistics, Engineering, and Force Protection and source of authority for the GeoBase Program, in accordance with Headquarters Air Force Mission Directive 1-38, *Deputy Chief of Staff, Logistics, Engineering and Force Protection*. The AF/A4 delegates the duties of the IGI&S program within The Directorate of Civil Engineers (AF/A4C).

2.5. Air Force Director of Civil Engineers (AF/A4C). AF/A4C is responsible for providing oversight of the AF GeoBase Program including developing and communicating policy and guidance and providing advocacy for overarching AF priorities ensuring alignment with headquarters strategy, policies, and directives. The AF/A4C GeoBase Program Manager will:

- 2.5.1. Coordinate Installation Geospatial Information and Services policies for AF natural and built infrastructure and environment.
- 2.5.2. Provide Installation Geospatial Information and Services strategy, policy, program advocacy and oversight.
- 2.5.3. Act as the primary voting representative on the Installation Geospatial Information and Services Governance Group. Represent Air Force within the Department of Defense and the interagency, as appropriate, on matters relating to Installation and specifications. Delegate alternate voting representatives as appropriate.
- 2.5.4. Coordinate with the appropriate data schema owner or respective organization when necessary as they pertain to voting on Installation Geospatial Information and Services Governance Group, Department of Defense, and other federal government agencies relating to Installation Geospatial Information and Services capabilities, standards, and specifications.
- 2.5.5. Coordinate with the appropriate Information Technology Governance Executive Group or AF Data Panel representative as established in AFI 17-140, *Air Force Architecting*.
- 2.5.6. Serve as the proponent to higher AF and DoD leadership and governance for Installation Geospatial Information and Services Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF-P), and requirements.
- 2.5.7. Represent Installation Geospatial Information and Services within the AF Geospatial-Intelligence Enterprise.
- 2.5.8. Coordinate Air Force Information Security Information Protection guidance for AF Installation Geospatial Information and Services data.
- 2.5.9. Participate in the Installation Geospatial Information and Services Governance Group and Installation Geospatial Information and Services Community of Interest as described in Department of Defense Instruction 8130.01.
- 2.5.10. Manage an Installation Geospatial Information and Services Stakeholder List which includes all data schema owners and is maintained with input from AFCEC.

2.6. National Guard Bureau (NGB), Air National Guard Readiness Center and Air Force Reserve Command (AFRC) Civil Engineers will:

- 2.6.1. Respond to, advocate for, and resource use of geospatial information, services, and capabilities within their span of control.
- 2.6.2. Support component GeoBase Program information technology platforms.
- 2.6.3. Coordinate program implementation with the AFCEC.
- 2.6.4. Identify and prioritize component installations geospatial information requirements.
- 2.6.5. Establish processes to exploit Installation Geospatial Information and Services gathering and dissemination capabilities, in accordance with Enterprise Architecture (EA) guidance (AFI 33-401, *Air Force Architecting*), and in consultation with the AFCEC.
- 2.6.6. Coordinate mission relevant geospatial data services and sustainment across installations in accordance with Installation Geospatial Information and Services policy and guidance.

2.6.7. Account for component GeoBase Program information technology investments through the AF Information Technology Investment Portfolio Suite (ITIPS).

2.6.8. Satisfy component software and equipment Information Assurance (IA) requirements of the geospatial information business system using the enterprise Mission Assurance Support Service (eMASS) system.

2.6.9. Provide representatives to appropriate Department of Defense and AF Installation Geospatial Information and Services related governance structure (Boards, Working Groups, Committees etc.).

2.6.10. Acquire, oversee and sustain component GeoBase Program information technology capabilities.

2.6.11. Coordinate mission relevant geospatial activities on Memorandum of Agreements (MOA) and other contractual agreements when non- AF governmental entities are involved.

2.6.12. Participate in establishing AF enterprise wide geospatial solutions for mission requirements.

2.6.13. Provide Installation Geospatial Information and Services education and outreach support and identify appropriate forums and training sources.

2.7. Major Command (MAJCOM) and DRU Civil Engineer will:

2.7.1. Validate, prioritize and advocate for direct mission related geospatial information, services, and/or capabilities needed to satisfy unique command mission requirements; lead, coordinate, or oversee mission specific exploitations of installation geospatial information, services, and/or capabilities across their command.

2.7.2. Participate in activities supporting the development of AF enterprise wide geospatial solutions for mission requirements.

2.7.3. Provide representatives to appropriate AF Installation Geospatial Information and Services related governance structure.

2.7.4. Coordinate expeditionary geospatial requirements with the functional managers of enduring and deployed Installation Geospatial Information and Services support personnel including Engineering (3E5X1) Air Force Specialty Code (AFSC).

2.8. Headquarters Air Force Installation and Mission Support Center (AFIMSC) Commander will:

2.8.1. Provide the adequate resources needed to implement the AF GeoBase Program and AF responsibilities associated with the OSD, Defense Installation Spatial Data Infrastructure (DISDI) Program.

2.8.2. Work with Major Commands, when the Major Command is Lead Command for a system (aircraft, munitions, weapons, support equipment, etc.) in acquisition or sustainment, to identify system specific installation-level geospatial data requirements and advocate for the necessary funding in the MAJCOMs' corporate budgeting process for the program office to meet those requirements.

2.8.3. Coordinate with other AF Centers (e.g. Air Force Sustainment Center, Air Force Lifecycle Management Center, etc.) regarding Installation Geospatial Information and Services requirements, data, and capabilities.

2.8.4. Coordinate with AF Installation and Mission Support Agency PSU (e.g., AFCEC, Air Force Security Forces Center, Air Force Installation Contracting Agency, etc.) regarding Installation Geospatial Information and Services resourcing requirements.

2.9. Air Force Civil Engineer Center (AFCEC) Director. A Primary Subordinate Unit under the AFIMSC and is responsible for the operational management of the GeoBase Program. AFCEC will:

2.9.1. Establish a Geospatial Information Officer (GIO), within AFCEC, as GeoBase Program Manager.

2.9.2. Coordinate geospatial data standards and Installation Geospatial Information and Services enterprise Information Technology Capability Requirements (ITCR) across all appropriate Functional communities.

2.9.3. Coordinate GeoBase capabilities identified by the Civil Engineer Enterprise Governance that require a materiel solution with the appropriate information technology policy and governance structure.

2.9.4. Ensure GeoBase information technology investment management and sustainment is in accordance with Department of Defense and AF policy and guidance.

2.9.5. Coordinate with Functional owners to evaluate existing geospatial applications to meet new requirements, prior to recommending new material solutions.

2.9.6. Coordinate with Functional owners to ensure the effective evaluation, selection, prioritization, and funding of competing GeoBase information technology investments and oversee their implementation.

2.9.7. Coordinate with Functional owners to manage requirements, capability changes, and funding execution for enterprise GeoBase information technology capability sustainment and modifications.

2.9.8. Draft, revise, and/or sustain GeoBase Program and related documents (e.g. playbooks,) and provide geospatial related input in other functional documents as necessary.

2.9.9. Manage the AF Adaptation of Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) parts Vector (V), Metadata (M), Quality (Q), and Raster (R), in order to ensure compliance with AF format standards and appropriate Defense Installation Spatial Data Infrastructure standards, and maintain the AF adaptation on Spatial Data Standards for Facilities, Infrastructure, and Environment Online.

2.9.10. The AFCEC/GIO is delegated by the A4C IGI&S Program Manager as an alternate AF voting representative on the Installation Geospatial Information and Services Governance Group, DoD, and other federal agencies working groups and/or committees relating to Installation Geospatial Information and Services standards and specifications. The GIO shall coordinate all votes with the primary representative at AF/A4C.

- 2.9.11. Coordinates with the appropriate data schema owner or respective organization when necessary pertaining to voting on Installation Geospatial Information and Services Governance Group, Department of Defense, and other federal government agencies.
- 2.9.12. Coordinate with AF/A4C on the OSD, Defense Installation Spatial Data Infrastructure initiatives. Mandates and provides direction to the Installations, data schema owners, and others as necessary.
- 2.9.13. Coordinate with AF/A4C on GeoBase related Memorandum of Agreements and other contractual agreements when non- AF governmental entities are involved. Coordinate within the appropriate governance structure where applicable.
- 2.9.14. Ensure GeoBase information technology capabilities are made visible, accessible, trusted, and interoperable throughout their lifecycle for all authorized users.
- 2.9.15. Maintain a current (less than two years old) GeoBase management plan to address future requirements; be consistent with higher headquarters strategic plans; establish sustainment strategies; and coordinate GeoBase planning and resource decisions across the organization.
- 2.9.16. Serve as the proponent for GeoBase programs, training, and requirements by identifying, developing and providing GeoBase specific related training as required. Responsible for reporting and maintaining training records.
- 2.9.17. Oversees GeoBase Program working groups. The GeoBase Working Group shall be used to validate and prioritize GeoBase Program requirements.
- 2.9.18. Coordinate input to development of AF Installation Geospatial Information and Services Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy.
- 2.9.19. Support AF Installation Geospatial Information and Services by conducting geospatial operations, providing analysis, and providing reach back support as mission operations require.
- 2.9.20. Coordinate and determine GeoBase software requirements and advocate for funding.
- 2.9.21. Ensure that a process to validate all users are in compliance with security access controls to enterprise GeoBase capabilities on the Non-secure Internet Protocol Router (NIPR) Network is established and maintained.
- 2.9.22. Appoint a System Authorization Access Requests (SAAR) points of contact(s) for users of all enterprise GeoBase capabilities.
- 2.9.23. Coordinate with the Civil Engineer (CE) enlisted Career Field Manager in order to manage training and establish knowledge levels for engineering specialists providing GeoBase support in accordance with the requirements of the Engineering (3E5X1) AF Specialty Code.
- 2.9.24. Develop and provide GeoBase specific related training as required.
- 2.9.25. Responsible for reporting
- 2.9.26. Support data stewards to correct geospatial data deficiencies and conform to the AF Adaptation of Spatial Data Standards for Facilities, Infrastructure, and Environment requirements and data formats.

2.9.27. Select the geospatial data layers that comprise the AF GeoBase Common Installation Picture (CIP) and manage the standard cartographic representation of the AF Common Installation Picture.

2.9.28. Oversees the updates of the AF Adaptation of the Defense Installation Spatial Data Infrastructure Spatial Data Standards for Facilities, Infrastructure, and Environment data standard and approves the version of the AF Adaptation of the Defense Installation Spatial Data Infrastructure Spatial Data Standards for Facilities, Infrastructure, and Environment data standard to be adopted and implemented for AF GeoBase data.

2.10. AFLCMC/HIBD Program Management Office (PMO). The Air Force Life Cycle Management Center (AFLCMC/HIBD) is the Program Management Office responsible for the enterprise Installation Geospatial Information and Services system and has the overall responsibility for CE system(s) acquisition, development, and sustainment. The enterprise Installation Geospatial Information and Services system Acquisition/ System, Sustainment Program Manager is located within the Business and Enterprise Systems Directorate (AFPEO BES).

2.11. Field Operating Agency (FOA) and Primary Subordinate Unit (PSU) Civil Engineer. Field Operating Agencies and Primary Subordinate Units that generate, integrate, analyze, or otherwise interact with and affect Installation Geospatial Information and Services are considered stakeholders in the GeoBase Program. Field Operating Agencies and Primary Subordinate Units will:

2.11.1. Facilitate operational Installation Geospatial Information and Services activities within their span of control (T-2).

2.11.2. Participate in the GeoBase Program governance structure, communicating requirements, collaborating on solutions, and sharing Installation Geospatial Information and Services data and capabilities (T-2).

2.11.3. Provide Subject Matter Experts for development of functional data standards (T-2).

2.12. Installation.

2.12.1. Installation Commander will:

2.12.1.1. Ensure there is an active GeoBase Program for the installation in accordance with DoDI 8130.01 (T-0).

2.12.1.2. Establish and champion an Installation Geospatial Information and Services Geospatial Information Officer at all AF Main Operating Bases and appropriate Forward Operating Locations. The installation commander can only establish the officer at the installations for which they have authority and responsibility. (T-2).

2.12.1.3. Ensure all installation producers and users of Installation Geospatial Information and Services use local geospatial capabilities where appropriate and coordinate requirements with the local Installation Geospatial Information and Services Geospatial Information Officer (T-3).

2.12.1.4. Be responsible for validation of the data composition and physical boundaries of the Regional Installation Picture (RIP) (T-2).

2.12.2. Base CE will:

2.12.2.1. Ensure all CE Data Stewards and Requirement Owner participate in local Installation Geospatial Information and Services subordinate working group and coordinate requirements with the Installation Geospatial Information and Services Geospatial Information Officer where appropriate (T-2).

2.12.2.2. Ensure their installation's GeoBase Program is appropriately supported, staffed and utilized to optimize investments in support of their installation mission requirements (T-2).

2.12.2.3. Ensure installation geospatial data are consistent with standards and follow quality assurance/quality control processes according to guidance provided by data stewards and Requirement Owners (T-2).

2.12.2.4. Be responsible for the development, maintenance, and quality assurance for geospatial data contained within the Defense Installation Spatial Data Infrastructure Common Installation Picture, as defined in DoDI 8130.01, *Defense Installation Spatial Data Infrastructure*, is the correct long form for citing this publication. (T-2).

2.12.2.5. Be responsible for the development, maintenance, and quality assurance for geospatial data contained within the AF Common Installation Picture in accordance with guidance from AFCEC (T-2).

2.12.2.6. Employ AF GeoBase Standard Services and Capabilities as mandated systems of record; i.e. for linear segmentation infrastructure data and analysis, per AFI 32-1001, *Operations Management* and Asset Management Plan Playbooks (USAF CE Portal <https://cs2.eis.af.mil/sites/10041/Pages/default.aspx>); and as Financial Improvement and Audit Readiness inputs for linear structures comparisons and assessments with real property inventories in accordance with AF Guidance Memorandum 2016-01 to AFI 32-9005, *Real Property Accountability and Reporting* and Installation Guides (T-2).

2.12.2.7. Ensure AF installation GeoBase data conforms to the latest version of the AF Adaptation of the Defense Installation Spatial Data Infrastructure Spatial Data Standards for Facilities, Infrastructure, and Environment data standard approved by AFCEC located at <https://www.sdsfieonline.org> (T-2).

2.12.3. Engineering Flight (CEN) will:

2.12.3.1. Identify a lead Geospatial Information Officer for the GeoBase Program to work in coordination with data stewards (T-2).

2.12.4. Installation GIO

2.12.4.1. Act as the primary point of contact for installation-level Installation Geospatial Information and Services activities (T-2).

2.12.4.2. Coordinate geospatial requirements with the Major Command or AFCEC Geospatial Information Officer (T-2).

2.12.4.3. Be responsible for the maintenance, quality assurance, and overall data integrity of the Defense Installation Spatial Data Infrastructure Common Installation Picture and AF Common Installation Picture in accordance with the applicable guidance from AFCEC (T-2).

2.12.4.4. Assist with development, maintenance, and quality assurance of geospatial data in accordance with the applicable guidance per relevant data schema owners and requirement owners. In the event no guidance exists the Engineering Flight coordinates with AFCEC to identify deficiencies in guidance (T-2).

2.12.4.5. Coordinate with Installation Geospatial Information Officers, Field Operating Agency, Primary Subordinate Unit, and installation Engineering (3E5X1) leadership, on policy, guidance, and standard operating procedures. Enhance the workflow processes of data acquisition from field surveys, and provide for data discoverability through Installation Geospatial Information and Services, services and capabilities (T-2).

2.12.4.6. Maintain training skills according to the relevant Career Field Education and Training Plan or similar guidance for civilians (T-2).

2.12.4.7. Provide education and outreach support on the use of Installation Geospatial Information and Services (T-3).

2.12.4.8. Refer interested users or potential users to appropriate forums, geospatial education, and training sources within the established Installation Geospatial Information and Services community. (T-3).

2.12.4.9. Execute and coordinate geospatial activities using qualified personnel, to include members of Engineering (3E5X1) AF Specialty Code (T-3).

2.12.4.10. Provide installation geospatial data visualization, analysis, and business requirement integration services (T-3).

2.12.4.11. Operate a subworking group under the Facilities Board Working Group (AFI 32-10142, *Facilities Board*) to coordinate installation geospatial activities and requirements (T-2).

2.12.4.12. Manage, protect, and make discoverable all installation geospatial data integrated through the GeoBase Program, including the Defense Installation Spatial Data Infrastructure Common Installation Picture, AF Common Installation Picture, Regional Installation Picture, and relevant data layers (T-2).

2.12.4.13. Absent an AF enterprise geospatial system, manage any local GeoBase related systems in accordance with applicable AF information technology and portfolio management standards (T-2).

2.12.4.14. Provide guidance and support to data owners regarding Installation Geospatial Information and Services data maintenance, services, products, and capabilities (T-2).

2.12.4.15. Provide appropriate technical or procedural support to ensure successful use of geospatial technologies (T-2).

2.12.4.16. Ensure compliance with latest AF Installation Geospatial Information and Services Geospatial Data Model as established by AFCEC (T-2).

CHAPTER 3

THE AIR FORCE GEOBASE PROGRAM

3.1. GeoBase will:

3.1.1. Conform to the Defense Business Enterprise Architecture (AFI 33-401, *Air Force Architecting*).

3.1.2. Align with AF Future Operating Concept core mission requirements as depicted in the A4 Enterprise Flight Plan (<https://cs2.eis.af.mil/sites/10041/Pages/default.aspx>).

3.1.3. Employ an asset management process guiding long-term organizational GeoBase resource investments.

3.1.4. Comply with applicable information assurance and certification and accreditation requirements to include registration of information technology systems (AFI 17-101 *Risk Management Framework (RMF) for AF Information Technology (IT)* and AFI 17-110 *AF Information Technology Portfolio Management and IT Investment Review*).

3.1.5. Utilize infrastructure and services of common AF information technology resources and AF GeoBase Program software portfolio to the maximum extent practical.

3.1.6. Ensure past, existing, and future AF GeoBase Program investments are inventoried, managed, assessed, and exploited in a shared governance forum to avoid redundancies.

3.1.7. Coordinate with Functional owners to validate the suitability of existing sources of geospatial information prior to investing in new geospatial data collection efforts.

3.1.8. Employ available data, metadata, and quality assurance standards to maximize interoperability and minimize application development costs (https://cs2.eis.af.mil/sites/10041/ProgramGroups/Resources/GeoBase%20Documents/index_GeoBase.html).

3.1.9. Coordinate with geospatial data schema owners regarding the facilitation of sharing AF GeoBase Program resources with other federal, state, municipal, or international agencies to the maximum extent allowable.

3.1.10. Establish and train a skilled workforce to develop, implement, and sustain long-term use of GeoBase related systems to support the mission.

3.1.11. Supports expeditionary geospatial activities through GeoReach and Expeditionary GeoBase processes to include but not limited to site selection, site survey, site planning, and deployed installation management processes.

3.1.11.1. GeoReach is the process to enable analysis and selection of potential forward or expeditionary locations by providing geospatial information and services. It provides planners and Airmen with geospatial information and services enabling improved site selection, deployment, and accelerated bed-down for emergency or expeditionary operations.

3.1.11.2. Expeditionary GeoBase is the deployed execution of GeoBase capabilities, affording deployed commanders and Airmen enhanced situational awareness of the

expeditionary installation or site. It is enabled through processes developed, trained, and executed at home station via the AF GeoBase Program.

3.2. AF GeoBase Program Supported Uses. GeoBase provides geospatial asset visibility of built and natural infrastructure in support of the AF mission. The following list contains examples of, but is not limited to, functional areas with geospatial requirements which can be supported by the GeoBase Program.

3.2.1. Airfield Obstructions. Provide location-based (horizontal) context and management of new and existing vertical airfield features to support airfield safety.

3.2.2. Asset Management. With respect to property improvements, track each building's relevant details such as year and type of construction, condition and maintenance, and capital improvements. Manage accountability, conditions and locations from a portfolio perspective.

3.2.3. Comprehensive Planning. Support master planning through the analysis of opportunities and constraints and the integration of AF mission requirements. This includes development of installation development plans, basing and force beddowns.

3.2.4. Cultural Resources. Provide support for planning integration, tribal and community relations, and risk reduction with regards to federal, state and local regulations.

3.2.5. Emergency Management. Provide geospatial support to natural disasters and manmade intentional or unintentional interruptions to mission activities by way of emergency planning, incident response, and disaster tracking.

3.2.6. Encroachment Management. Provide standard and specialized geospatial views and analysis of the built and natural environment in the Installation Complex that reflect current/potential future incompatibilities between AF missions and the outside communities.

3.2.7. Environmental Compliance. Provide geospatial views of air quality, hazardous materials, hazardous waste, integrated solid waste, storage tanks, water quality, and spill layers.

3.2.8. Environmental Restoration and Munitions Response. Display layers that includes installation restoration and military munitions cleanup sites and program activities.

3.2.9. Explosive Safety. Support the generation of quantity distance arcs and to identify possible explosive hazards and enhance safety during mission activities.

3.2.10. Facility Operations. Provide analysis of built infrastructure including construction operations, grounds maintenance (e.g., snow removal), and other facility operations to support efficient and comprehensive facility management.

3.2.11. Infrastructure Assessments. Provide Infrastructure Assessments to illustrate critical assets; i.e. Airfield & Transportation, Utilities and Electrical Network geo-enabled sustainment management systems for data collection and maintenance, condition analysis, Integrated Priority List (IPL) scoring, and probability of failure determinations.

3.2.12. Natural Resources. Assist with identification, planning integration, protection of human health and the environment, and to avoid the risk of violations of federal, state, and local laws (e.g. *Sikes Act*, *Endangered Species Act*, *Migratory Bird Treaty Act*, and *Marine Mammal Protection Act*), and stipulated fines and penalties.

3.2.13. Real Property. Generate geospatial views and analysis of AF real property assets in support of the acquisition, management, and disposal of a real property asset to maintain an accurate real property inventory.

3.2.14. Space Optimization. Allows for management of utilization and occupancy of facility (building) space for effective space optimization.

3.2.15. Transportation Network. Provide geospatial information and representation of installation transportation infrastructure to assist with the safe and uninterrupted movement of vehicles (e.g., aircraft, trains, and cars) and pedestrians providing mission support.

3.2.16. Utilities. Provide inventory, management and analysis of built infrastructure (specifically linear assets) to ensure proper geospatial location, operation, and maintenance to avoid service losses and degradation of mission support.

WARREN D. BERRY, Lt Gen, USAF
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Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

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Abbreviations and Acronyms

AF—Air Force

AFCEC—Air Force Civil Engineer Center

AFI—Air Force Instruction

AFIMSC—Air Force Installation and Mission Support Center

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management System

AFSC—Air Force Specialty Code

ANG—Air National Guard

ASD, EI&E—Assistant Secretary of Defense for Energy, Installations and Environment

CE—Civil Engineer

CEN—Engineering Flight

CIO—Chief Information Officer

CIP—Common Installation Picture

DCS—Deputy Chief of Staff

DLS—Data Layer Standard

DISDI—Defense Installation Spatial Data Infrastructure

DLS—Data Layer Standard

DoD—Department of Defense

DoDD—Department of Defense Directive

DoDI—Department of Defense Instruction

DOTMLPF-P—Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy

DRU—Direct Reporting Unit
EA—Enterprise Architecture
eMASS—enterprise Mission Assurance Support Service
EO—Executive Order
FOA—Field Operating Agency
GDM—Geospatial Data Model
GEOINT—Geospatial-Intelligence
GIO—Geospatial Information Officer
GI&S—Geospatial Information and Services
HAFMD—Headquarters Air Force Mission Directive
IA—Information Assurance
IGG—Installation Geospatial Information and Services Governance Group
IGI&S—Installation Geospatial Information and Services
IPL—Integrated Priority List
IT—Information Technology
ITCR—Information Technology Capability Request
ITIPS—Information Technology Investment Portfolio Suite
JP—Joint Publication
MAJCOM—Major Command
MOA—Memorandum of Agreement
NGA—National Geospatial Intelligence Agency
OMB—Office of Management and Budget
OPR—Office of Primary Responsibility
OSD—Office of the Secretary of Defense
PSU—Primary Subordinate Unit
RIP—Regional Installation Picture
SAF—Secretary of the Air Force
SDSFIE—Spatial Data Standards for Facilities, Infrastructure, and Environment
SME—Subject Matter Expert
T—Tier

Terms

Common Installation Picture (CIP), Air Force—The Common Installation Picture is the standard Air Force geospatial data set that depicts facilities and physical features on an Installation. The Common Installation Picture is comprised of vector layers and imagery (no greater than 5 years old) that provides a foundational view of Air Force Installations for fundamental orientation.

Common Installation Picture (CIP)—The distinct, minimum set of geospatial feature and imagery necessary to provide a foundational map depicting Department of Defense Installations and Sites as defined in Department of Defense Instruction 4165.14, *Real Property Inventory and Forecasting*. The purpose of the Common Installation Picture is to provide a readily available, standardized map background to serve as the basis for planning and execution of Energy, Installations and Environment responsibilities and functions.

Data Content Specification—Sometimes called a Data Layer Standard (DLS) or Specification Data Layer Standard, is a detailed description of a dataset or data layer together with additional information that will enable it to be created, supplied to, and used by other organizations. It is a technical document that provides essential information for data collection and metadata population. It describes the ideal dataset or “how a dataset should be.”

Data Layer—A specific geospatial feature, such as wetlands, land use, or building, which is a point, line or polygon object with a spatial location in the real-world landscape that can be used for visualization and analysis.

Data Schema Owner—A Data Schema Owner is the OPR responsible for development and maintenance of the data model of a specific data layer or set of data layers. Data Schema Owners reside at the Primary Subordinate Unit (PSU), Field Operating Agency or equivalent level. The representative(s) from the OPR is a recognized Functional Subject Matter Expert (SME) that has the background, expertise, and experience to make decisions for the respective geospatial data layer(s). The GeoBase requires that all geospatial data layers have a documented Data Schema Owner. The Data Schema Owner role is considered a subset of the responsibilities of the Information Owner/Steward as defined in AFI 17-130 Air Force Cybersecurity Program Management.

Data Steward—A data steward is the OPR responsible for data acquisition, correctness, completeness, and maintenance for an assigned geospatial data element. Data stewards can be functional representatives from all echelons of the AF hierarchy. The data steward serves as the GeoBase’s primary point of contact for issues concerning specific geospatial data but not for geospatial schema issues.

GeoBase—Commissioned July 2001, supports the AF CE mission by providing accurate, current, and timely satellite and aerial imagery and map data representing real-world features and conditions for AF installations, ranges and property. GeoBase strives to support AF missions by providing Installation Geospatial Information and Services. Committed and trained personnel as well as advanced information technology infrastructure enable these services.

Geospatial Data Model (GDM)—The list geospatial data layers that includes data layer logical definitions, physical data structure of geospatial layers when stored within a geospatially enabled database management system, and business justifications that have been determined to meet the needs of Installation Geospatial Information and Services Data Schema Owners. These geospatial data layers may be created and maintained by AF Functionals or externally managed geospatial

data layers from other identified Authoritative Data Sources at the federal, state, or local levels. The Geospatial Data Model is predominately based upon the current AF Adaptation of Defense Installation Spatial Data Infrastructure's - Vector.

Geospatial Engineering—Encompasses those tasks that provide geospatial information and services to enhance awareness, understanding, and effective use of the operational environment for commanders and staffs across the range of military operations. Geospatial engineering provides the Joint Force Command with terrain analysis and visualization of the operational environment through the utilization and display of accurate terrain and other geospatially referenced information and derived actionable advice that is referenced to precise locations on the earth's surface. This geospatial data forms the foundation upon which all other information on the operational environment is layered to form the common operational picture (COP) for the Joint Force Command and is an element of Geospatial-Intelligence. Geospatial engineer units provide strategic, operational, and tactical terrain analysis, terrain visualization, digital terrain products, nonstandard or updated map products, and baseline survey data to combat, combat support, and CSS forces.

Geospatial Information & Services—Is the collection, information extraction, storage, dissemination, and exploitation of geodetic, geomagnetic, imagery (both commercial and national source), gravimetric, aeronautical, topographic, hydrographic, littoral, cultural, and toponymic data accurately referenced to a precise location on the Earth's surface. Geospatial services include tools that enable users to access and manipulate data, and also include instruction, training, laboratory support, and guidance for the use of geospatial data. (Joint Publication 2-03)

Geospatial Intelligence—The exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. (Joint Publication 2-03)

Regional Installation Picture (RIP)—The collection of geospatial information, including imagery that depicts features outside the Installation boundary to support mission requirements excluding targeting and combat operations. The content of the Regional Installation Picture is defined, at a minimum, by the geospatial information contained in the Installation Complex (as defined in AFI 90-2001 "*Encroachment Management*"). The geographic extent of the Regional Installation Picture is, at a minimum, comprised of the maximum extent of the combination of the outer horizontal surface (as defined by United Facilities Criteria 3-260-01 "*Airfield and Heliport Design*"), the Installation Complex (as defined in AFI 90-2001 "*Encroachment Management*"), and a 3-mile buffer from the Installation boundary. Either the content or geographic extent of the Regional Installation Picture can be supplemented or extended by the Installation Commander as necessary.

Requirement Owner—A Requirement Owner includes any stakeholder requesting geospatial information or services that may or may not already be satisfied by an existing Installation Geospatial Information and Services capability or solution. A Requirement Owner may or may not be directly affiliated with AF Civil Engineering. Requirement can be identified as a geospatial capability/tool and/or data element.

Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE)—Spatial Data Standards for Facilities, Infrastructure, and Environment is a community standard, and recognized as the enterprise standard for geospatial data across the entire Department of Defense business mission area. It is a "family of standards" consisting of seven standards, one of which is

the Spatial Data Standards for Facilities, Infrastructure, and Environment Vector standard. Spatial Data Standards for Facilities, Infrastructure, and Environment is managed by the Installation Geospatial Information and Services Governance Group.

Stakeholder—functional owner that relies on the GeoBase Program for geospatial data storage or access, analysis capabilities, or service delivery to meet their mission requirements.